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### MECHANICS.

52. Proposed by S. ELMER SLOCUM, Union College, Schenectady, New York.

A chain 16 feet long is hung over a smooth pin with one end 2 feet higher than the other end and then let go. Show that the chain will run off the pin in about 7-5 second. [*Wright's Mechanics*, page 92.]

53. Proposed by J. C. NAGLE, M. A., C. E., Professor of Civil Engineering, Agricultural and Mechanical College of Texas.

Find the locus of the center of gravity of an arc of constant length for a parabola.

54. Proposed by C. H. WILSON, Poughkeepsie, New York.

A body slides from rest down a series of smooth inclined planes, whose total heights are  $h$  feet. Show that the velocity at the bottom is  $\sqrt{2gh}$  feet per second. [From *Wright's Mechanics*.]

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### AVERAGE AND PROBABILITY.

51. Proposed by G. B. M. ZERR, A. M., Ph. D., Texarkana, Arkansas.

Three points are taken at random in a sphere and a plane passed through them. Find the average volume of the segment cut off from the sphere.

52. Proposed by B. F. FINKEL, A. M., M. Sc., Professor of Mathematics and Physics in Drury College, Springfield, Missouri.

A straight line of length  $a$  is divided into three parts by two points taken at random; find the chance that no part is greater than  $b$ . [From *Hall and Knight's Higher Algebra*.]

53. Proposed by Samuel E. Harwood, Professor of Mathematics, Southern Illinois State Normal University, Carbondale, Illinois.

Four Latin sentences are given. Number one has 12 words, two has 13 words, three and four have 6 each. What are the chances that two pupils will have them in the same order? Will the result vary with the number of pupils in the class?

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### EDITORIALS.

President George H. Harter, of Delaware College, Delaware, has just ordered a complete set of the MONTHLY.

We shall be pleased to pay 25 cents each for a limited number of copies of No. 6, Vol. I, and No. 11, Vol. II, of the MONTHLY. Any of our readers wishing to dispose of these numbers should write to us.

We are greatly pleased to note that the Board of City Trusts, Philadelphia, Pennsylvania, has recognized the long and faithful service of Professor Warren Holden in the following resolution: Resolved, That in consideration of forty-five years continued and faithful service, Warren Holden, A. M., Professor of Mathematics at Girard College, be retired January 31, 1897, at a salary of \$2,500 per annum.